

ART 34

## CLAIMS

1. A process for producing a diaphragm with applied catalytically active layer for use in low-temperature fuel cells, comprising the following steps:

a) processing a non-polar solvent, a catalytically active material and a polymer solution to form a paste,

b) applying the paste in layer form to a polymer diaphragm, and

c) pressing the diaphragm with the applied paste with the application of heat so that the solvents escape and the catalytically active material is fixed on the diaphragm.

2. A process as set forth in claim 1 wherein the paste is applied to the diaphragm in layer form by screen printing.

3. A process as set forth in claim 1 or claim 2 wherein a further binder was added to the paste.

4. A process as set forth in one of the preceding claims wherein a plasticizer was mixed with the paste.

5. A process as set forth in one of the preceding claims wherein the paste applied to the diaphragm in layer form is dried prior to the pressing operation at temperatures of between 30 and 80°C.

6. A process as set forth in one of the preceding claims wherein the paste is applied to the diaphragm in a thickness of between 10 and 100  $\mu\text{m}$ .

7. A process as set forth in one of the preceding claims wherein Nafion<sup>®</sup> is used as the polymer.

8. A process as set forth in one of the preceding claims wherein the applied paste is pressed to the diaphragm at temperatures of between 100°C and 150°C.

9. A process as set forth in one of the preceding claims wherein platinum is used as the catalyst material.

10. A process as set forth in one of the preceding claims wherein a solvent which predominantly contains terpineol is used.

11. A process as set forth in one of the preceding claims wherein the paste comprises between 10 and 50 %, preferably between 20 and 30 % by weight of solid material, between 0 and 10 % and preferably between 1 and 2 % by weight of binder, between 0 and 5 % and preferably between 1 and 2 % by weight of plasticizer, with the balance solvent.

12. A process as set forth in one of the preceding claims wherein the paste contains between 60 and 80 % by weight of solvent.